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APPLICATION

FOR

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TITLE: PROVIDING CONTENT INTERRUPTIONS

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PROVIDING CONTENT INTERRUPTIONS

Background

This invention relates generally to broadband content distribution.

5 Broadband content distribution may involve the distribution of television programming to a large number of receivers as well as the distribution of other forms of content. Content which may be amenable to wide spread distribution include video, graphics, software, audio and games.

10 The ability to charge customers for content in many cases means that the type of content that may be distributed may be of higher quality. Thus, pay-per-view television programming is widely accepted.

15 However, there is a considerable demand for the distribution of content without charge. Conventional television broadcasts subsidize distribution through an advertising scenario. Similarly, in connection with the Internet, a large amount of content is distributed for free 20 with the hope that viewers will patronize advertisers that pay for banner ads that accompany the content.

Thus, it would be desirable to include advertising material or other interruptions in the course of a wide variety of content that might be distributed for free or at

reduced charge in a broadband distribution network. However, many content formats are not amenable to the ready incorporation of advertising material. For example, games and software could be distributed with banner ads.

5 However, full screen display of advertisements is generally not viable because there is no way to know when to insert these advertisements in the course of the video game or software operation.

An interruptible content delivery system allows the
10 play of any of a variety of types of selectable content to be paused to permit the automatic insertion of advertising material. Thus, the play of audio, video, games, graphics, software or other media may be paused automatically to allow insertion of advertisements. At the end of the
15 advertisement, the content restarts where it left off.

Generally, advertisers prefer to target their advertisements to specific demographic profiles. For example, advertisers may attempt to target a specific demographic profile based on the nature of a particular
20 type of content such as the nature of the television program. The advertisers may determine that people who enjoy particular types of content, such as particular television programs, may be more likely to purchase particular types of products.

25 Advertisers, who prefer to maintain an image, may prefer to avoid having their advertisements run in

conjunction with content that may have controversial aspects. Controversial aspects may include violence, language, adult situations, sexual content and the like. Thus, advertisers may prefer to target their advertisements 5 to that content more likely to be enjoyed by the advertiser's target audience.

Of course in some potential interruptible content delivery systems, it may not be known in advance what content may be played at any given time. Instead, in many 10 situations, the user may be in control of selecting the content that is played at any particular time. Thus, the issue arises how to insert advertisements in a fashion that may be acceptable to advertisers. In particular, it may be necessary to ensure that specific ads are associated with 15 particular types of content either because of the type of content involved or because the advertiser may believe that particular types of audiences are more likely to be attracted to specific types of content.

Thus, there is a need for ways to enable advertising 20 to be inserted in an interruptible content delivery system so as to implement advertiser guidelines.

Brief Description of the Drawings

Figure 1 is a schematic depiction of a broadband digital distribution system in accordance with one 25 embodiment of the present invention;

Figure 2 is a flow chart for software that may be utilized on a receiver in the system shown in Figure 1;

Figure 3 is a block depiction of a receiver in accordance with one embodiment of the present invention;

5 and

Figure 4 is a flow chart for software in accordance with one embodiment of the present invention.

Detailed Description

A digital broadband distribution network 10, shown in
10 Figure 1, may implement the distribution of a variety of content formats and the provision of content interruptions on a content receiver 16. The content receiver 16 receives content from a content transmitter 12 that in turn receives broadcast content from a content provider 14.

15 The content transmitted by the transmitter 12 may be made up of conventional content termed "interruptible content" and "interrupting content". Interruptible content is content whose operation, play, or use may be interrupted for the substitution of other content. The content that is
20 temporarily substituted for the interruptible content is called the interrupting content.

In accordance with one embodiment, interruptible content that the user desires to receive may be interrupted with interrupting content that may help to pay for the
25 interruptible content. The interrupting content may include advertisements.

The interruptible content may be video, graphics, audio, games, and other software such as application software. The interrupting content may be substituted for the interruptible content under control of the receiver 16 5 in one embodiment.

The content from the content transmitter 12 is received by a tuner/demodulator 18 contained in the digital content receiver 16. The tuner/demodulator 18 tunes to one or more channels and demodulates those channels for 10 display. In addition, the tuner/demodulator 18 may parse the interruptible and interrupting content and forwards that information to an encrypted cache 20. The tuner/demodulator 18 also parses storing instructions utilized for controlling the storage of the content. The 15 storing instructions are also forwarded to the encrypted cache 20 for use in storing the content. In addition, the tuner/demodulator 18 may parse upgrades, provided with the content, for upgrading previously received content. Finally the tuner/demodulator 18 may parse interruption 20 instructions from the rest of the content. These interruption instructions tell when to interrupt the interruptible content with the interrupting content. The interruption instructions may be forwarded to a program guide 24.

25 The program guide 24 may receive interruption instructions from a back channel that may be coupled to the

broadcast content provider 14. The interruption instructions may be conveyed, for example, over the Internet as indicated at 26. In some cases, the interruption instructions may be updated, revised or 5 extended and therefore it may be necessary to convey them after the original content is received.

The program guide 24 may provide a schedule of available information that may be received from the content provider 14. This information may be accessed over the 10 backchannel such as the Internet 26 to reduce the storage requirements on the content receiver 16. The interruption instructions, received over the back channel or as parsed by the tuner/demodulator 18, may be forwarded by the content guide 24 to a shell 22. The shell 22 in one 15 embodiment of the present invention may be a software module that controls the use of content received from the broadcast content provider 14. Moreover, the shell 22 implements the interruption of interruptible content with interrupting content in accordance with interruption 20 instructions received as described previously.

The encrypted cache 20 stores the content in a format that prevents decryption and theft by unauthorized individuals. The encrypted cache 20 may, for example, be part of a hard disk drive. When content is received by the 25 system 10, the shell 22 stores the information on the hard disk drive and particularly in the encrypted cache. For

example, the shell 22 may cause the content to be distributed to a variety of storage locations on the hard disk drive so that the content may not be continuously accessed in one contiguous hard drive area. Only the shell 5 22 can access the map that indicates where the content is stored on the hard disk drive and how it can be reconstructed to play back the content in a meaningful fashion.

Thus, as content is acquired from a source and stored 10 through the shell into the hard disk drive, it is stored in a form that can only be accessed by the shell thereafter. To access the content one must access the content through the shell because only the shell knows where all the portions of the content are stored and how to reconstruct it in a 15 meaningful fashion. Thus, the shell can control access in a variety of ways. For example, the shell can prevent access, the shell can provide access only in return for either watching a commercial or paying a fee or the shell may limit the number of times that the content may be 20 viewed or even the times when the content may be viewed.

Thus, in the embodiment illustrated in Figure 1, the shell 22 may have content, such as games or rentable software as a few examples. When the user wishes to use the content that is available from the content provider 14, 25 the user may request a download of that information or that information may be conveyed during conditions of high

bandwidth availability. Alternatively, other schemes for providing the content to the receiver 16 may be utilized. In general, the transport mechanism may include any digital mechanism such as satellite transmission, cable 5 transmission or airwave broadcast.

Conceivably, the content may also be provided in conventional physical, portable forms such as compact disks (CD-ROM), digital video disks (DVD), flash memory or the like. The content, however received, is encoded in a way 10 in which, absent the use of the shell 22, one would be unable to use, hear, view, play or otherwise enjoy the content. Thus, the system controls access to the content in a secure way using encryption provided with the content as conveyed over the transport media or as received in 15 physical form by the user.

Once the information has been cached in the cache 20, the user can receive the right to enjoy play, hear or view the content as the case may be from the shell 22. The shell 22 then releases the information for use in the 20 appropriate format on the processor-based content receiver 16. The shell 22 may also control the number of times or the time period when the content may be used.

Moreover, the shell 22 monitors a criteria which determines when the content's use is to be interrupted with 25 interrupting content. Thus, the shell 22 may force a mechanism wherein interrupting content may be temporarily

played in place of interruptible content. For example, advertisements may be provided together with the interruptible content. Alternatively, the interrupting and interruptible content may be received at different times 5 via different mechanisms.

For example, the interrupting content may be inserted at regular intervals. After allowing content to be played for a predetermined amount of time, interrupting content may be inserted automatically. In other cases, the 10 interrupting content may be inserted when advantageous conditions arise. For example, in connection with gaming software, when the user reaches a stopping point, the system may determine that the action has paused sufficiently that the interrupting content may be inserted. 15 Moreover, instead of linearly inserting the interrupting content, the content may be inserted in a progressive fashion. Thus, the more the user uses the content the higher the rate at which interrupting content may be substituted.

20 In one embodiment of the present invention, the content that is being played may be interrupted with the play of the commercial in real time. That is, when the commercial is broadcast over a broadcast media, it may automatically be inserted into the playback of the content 25 on the system 10 as well.

In one embodiment of the present invention, the interruptible content may be an advertisement; however, the interrupting content may also be a request that the user make some form of payment in order to continue to use the 5 interruptible content. For example, the receiver 16 may be called upon to access backchannel to make a payment for the continued use of the content. When the receiver 16 does so, the receiver 16 may be provided with a code either through the back channel or from the content provider which 10 allows continued use of the interruptible content.

In some embodiments of the present invention, techniques may be utilized to reduce the likelihood that users of the system 10 will discontinue their use when the commercial is played. For example, an overlay may be 15 provided over the commercial indicate what is coming up next in the content. For example, where the content is game and the commercial is inserted after the user reaches a given level, information may be provided about the next level as an overlay, for example, over the ongoing play of 20 the commercial.

Referring to Figure 2, the software 28 for controlling the interruption of the interruptible content may be stored on a suitable storage medium such as a hard disk drive on the receiver 16. Initially, the software 28 waits for a 25 request for content as indicated in diamond 30. Once such a request is received, the content may be supplied as

indicated in block 32. In the same process, interruption instructions may be acquired as indicated in block 34 for the content that was requested and supplied in block 32. In addition, interrupting content may then be obtained as 5 indicated in block 36. When an interruption criteria is satisfied, as determined in diamond 38, the ongoing use of the interruptible content may be interrupted as indicated in block 40. Thus, in one embodiment of the present invention, the interruptible content is interrupted upon 10 satisfaction of an interruption criteria. The interrupting content, such as an advertisement, is substituted temporarily.

A check at diamond 42 then determines whether the interrupted criteria is complete. If not, the flow 15 recycles to continue to check to determine whether the interruption criteria is satisfied at diamond 38. Otherwise, the flow ends.

A processor-based content receiver 16 in accordance with one embodiment of the present invention shown in 20 Figure 3, may be a set top box, a desk top computer, an appliance, a handheld device, or other form factors. The receiver 16 may include a processor 44. In one embodiment, the processor 44 may be coupled to an accelerated graphics port (AGP) chipset 46 for implementing an accelerated 25 graphics port embodiment. The chipset 46 communicates with the system memory 52, the AGP port 48 and the graphics

accelerator 50. A television 54 may be coupled to the video output of the graphics accelerator 50. The chipset 46 is also coupled to a bus 56 that may be, for example, a Peripheral Component Interconnect bus (PCI) bus. See
5 revision 2.1 of the PCI Electrical Specification available from the PCI Special Interest Group, Portland, Oregon 97214. The bus 56 connects to a TV tuner/capture card 58 that provides tuning and demodulation for receiving the digital signal. The card 58 may be coupled an antenna 60
10 or other source of digital video such as a cable input, a satellite receiver or the like.

The bus 56 is also coupled to a bridge 62 that couples the hard disk drive 64 that may store the software 28 and 80 in one embodiment of the present invention. The bridge
15 62 is also coupled to another bus 66 that may be coupled to a serial input/output (SIO) device 68. In one embodiment of the present invention, the device 68 is in turn coupled to an interface 70 that may be an infrared interface. The interface 70 communicates with a remote control unit 72.
20 Also connected to the bus 66 is a basic input/output system (BIOS) 74.

In some cases, a large amount of content may eventually be downloaded or otherwise acquired and stored in a storage medium associated with the system 10. For
25 example, in conventional systems, the storage medium may be a hard disk drive. Thus, it may be useful for the user to

know what content has been stored on the user's hard disk drive. A file may be assembled which gives the user a content guide that lists all the content that is still available for access through the shell 22. In this way, 5 the user can select that content by selecting one of the entries in the content guide. For example, the entries in the content guide may be selected by mouse clicking on them causing the content to immediately begin play.

While a digital receiving system has been described 10 above, the present application is equally applicable to analog systems such as analog television receivers that work with set-top boxes. In such case, storing instructions may be provided over the vertical blanking interval in one embodiment of the present invention. 15 Alternatively, storing instructions may be received over the Internet or through some other source.

In another alternate embodiment, interruption 20 instructions, interrupting content and interruptible content may be received over the Internet 26. In such case, the content may be forwarded through the program guide 24 and directly to the encrypted cache 20. As a result, the content bypasses the tuner/demodulator 18 but still ends up being stored in the encrypted cache 20 as described previously. That information may then be 25 accessed through the shell 22 in the same way as information stored in the encrypted cache 20 via the

tuner/demodulator 18. The interruption instructions may be sent through the program guide 24 to the shell 22.

The software 80, shown in Figure 4, enables the insertion of advertisements in an interruptible content delivery system to implement advertiser insertion guidelines. Advertisers may wish to avoid having their advertisements associated with particular types of content considered unsuitable. For example, some content may have sex, language, violence or other aspects which the advertiser may wish to avoid becoming associated with. In addition, an advertiser may prefer that its advertisements be played in association with particular types of content. For example, an advertiser may believe that people who enjoy particular types of content may be more or less likely to purchase particular types of products and services. Thus, advertisers may wish to control the content with which their advertisements are associated. Advertisers may wish their advertisements to run in conjunction with specific types of content. Embodiments of the software 80 enable these types of guidelines to be automatically implemented.

The software 80 begins by determining whether a scheduled advertising time has arrived as determined in diamond 82 in accordance with one embodiment of the present invention. In some cases, particular advertisements may be inserted at particular times. In other cases, the

advertisements may be inserted using other determining characteristics.

In an embodiment in which scheduled time is the event that triggers the play of a particular advertisement, a 5 required rating for a particular advertisement is accessed, as indicated in block 84. Each advertisement may be identified with a particular rating that indicates the nature of content with which the advertisement may be associated. Thus, content may be rated, for example on a 10 numerical system, based on characteristics that may be considered suitable or unsuitable to various advertisers. For example, the presence of violence, sex, race issues, or language aspects may be used to assign a particular rating to content making that content more or less desirable to 15 particular advertisers. For example, some advertisers may wish to be associated with content that includes obscene language while other advertisers may prefer not to be associated with such content.

In one embodiment of the present invention, the content 20 may receive an overall suitability rating which may be accessible in a database, for example. In other embodiments of the present invention, the content may receive suitability ratings with respect to a number of aspects such as language, sexual content, violence, and the like.

25 The suitability rating of a particular item of content currently being played by the user may be compared to a

rating required by a particular advertiser as indicated in block 86. If there is a match, as determined at diamond 88, the nature of the content is compared to any specific requirements for types of content desired by the advertiser 5 as indicated in block 90. For example, in a system in which audio files are made available to users, one advertiser may prefer to advertise in connection with rock and roll content while another advertiser may prefer to advertise in connection with jazz content. A check at 10 block 90 determines what types of content, if any, have been specified by the advertiser. For example, keywords in content descriptions may be searched to see if there is a content type match with the advertiser's content type guideline. If there is a content type match, as determined 15 in diamond 92, the advertisement is run as indicated in block 94. If there is not a content type match at diamond 88 or at diamond 92, the flow iterates back to the beginning.

An automated system may then implement advertiser 20 guidelines with respect to suitability and content type, as two examples. In one embodiment, each content file may include an identifying field that provides information about suitability and content type. Similarly, the advertisements may be associated with suitability and 25 content type requirements. The software 80 matches the suitability and content type requirements with the actual